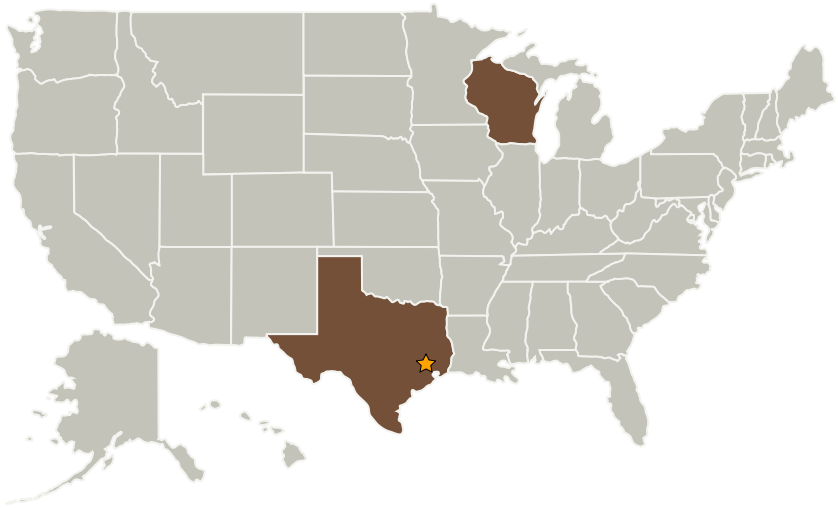
Enhanced Brine Dewatering System, Phase II

Completed Technology Project (2008 - 2010)

Project Introduction

The purpose of the Enhanced Brine Dewatering System (EBDS) is to provide a scalable means of completely recovering usable water from byproducts created by reverse osmosis water purification systems without the use of consumable wicks. Extended duration Lunar and Mars missions will require the conservation and recovery of water to allow for autonomous closed environments that dramatically reduce launch mass and stowage volumes. The EBDS development will build on previous developments in condensing heat exchangers to establish reliable, passive, and energy-efficient methods for recovering water, and will develop the phase separation and solid salt removal and collection methods required for EBDS functionality. The EBDS will use evaporation and condensing surfaces designed to eliminate biological growth through material selection, surface treatments, and hardware operational procedures. Design for the reduced gravity of Lunar and Martian applications enables simplified liquid/gas separation, compared with microgravity applications, and makes the design readily applicable to terrestrial applications. Crew interaction is limited to periodically removing the bio-isolated waste byproducts from the system. A fully functional prototype Lunar Outpost EBDS will be developed and tested for an extended duration, to evaluate long-term feasibility and performance, and to bring the EBDS to TRL 6.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Johnson Space Center (JSC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Johnson Space Center(JSC)	Lead Organization	NASA Center	Houston, Texas
Orbital Technologies Corporation	Supporting Organization	Industry Women-Owned Small Business (WOSB)	Madison, Wisconsin

Primary U.S. Work Locations	
Texas	Wisconsin

Project Transitions

January 2008: Project Start

January 2010: Closed out

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX07 Exploration Destination Systems
  - TX07.1 In-Situ Resource Utilization
    - TX07.1.2 Resource Acquisition, Isolation, and Preparation